CONSUMER SALES DATA PROVIDE A USEFUL TOOL FOR MANAGING DATABASES MONITORING THE US FOOD SUPPLY

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Abstract:

Background: The USDA National Nutrient Database for Standard Reference (SR) is the major source of food composition data in the United States (US). Monitoring the breadth and pace of changes in the US food system is a major challenge for databases.
Objective: The objective of this study is to explore the use of AC Nielsen market sales data as a database management tool.
Description: AC Nielsen consumer sales data have been used by Nutrient Data Laboratory (NDL), USDA intermittently in the past for selection of specific brands for analysis and for market share weighting of the nutrient data, as part of their National Food and Nutrient Analysis Program (NFNAP). Recently, comprehensive sales data on commercial packaged foods were purchased by NDL, as part of an ongoing inter-agency sodium monitoring project. Additional use of these data as a database management tool is being explored. For example, a sales-driven, proactive approach for coverage for the food groups, 'Breakfast Cereals', 'Nuts and Seed Products' and 'Spices and Herbs' was implemented for SR 25 and SR 26. Sales criteria of at least 1 million units and 0.1% of total food group sales was established for inclusion in the database. Of the over 3,000 ready-to-eat (RTE) cereals that have market sales information in AC Nielsen data, 127 products met the criteria and represent about 88% of RTE cereals sold in the US. Of these, 17 are not currently in the SR; hence, they will be added. Foods representing the top quartile of sales were reviewed for analysis under NFNAP. For example, two out of the eight RTE cereals in the top quartile of sales have not been analyzed under NFNAP; hence, they will be analyzed.
Conclusion: Consumer sales data have several limitations and challenges. However, they provide a valuable tool for databases monitoring the US food supply and are essential in ensuring national representativeness of the nutrient data generated under NFNAP.

Objective:

The objective of this study is to explore the use of Nielsen market sales data as a database management tool for the USDA National Nutrient Database for Standard Reference.

Data Sources:

USDA National Nutrient Database for Standard Reference (SR)

- SR is the major source of food composition data in the United States. It provides the foundation for most food composition databases used in food policy, research, dietary practice, and nutrition monitoring.
- It is updated annually; the latest version 25 was released in September 2012.
- It contains data for about 8,100 food items and up to146 nutrients and food components.
- The food composition data are derived from USDA contracted analyses, the food industry, and the scientific literature.
- The National Food and Nutrient Analysis Program (NFNAP) generates original analytical data for foods sampled nationwide through a multi-stage probability sampling plan and analyzed using validated procedures.

Nielsen Sales data

- It provides point-of-sale data for sales and price of commercially packaged goods from most major retail chains.
- Used to measure market shares by marketing firms, food manufacturers, and retailers.
- Datasets are available by year. Point-of-sale data for 2009 was used.

Strengths

- Is only one out of two point-of-sale datasets available in US for commercially packaged goods.
- Provides accurate representation of sales at the included retail chains, as not dependant on respondents' memory for food description or amount consumed, or other dietary instrument errors.

Limitations

- Does not include warehouse stores (e.g., Costco), some large store chains (e.g., Wal-Mart), vending machines, restaurants, and specialty stores and products with sales less than 2 million.
- Is cost-prohibitive.
- The sales information cannot be made public or shared between different agencies.
- The data tables have poor database design, including poor documentation, non matching UPC codes between description and sales files, different formats for UPC codes for some food groups, inconsistent level of detail reporting across different food groups, same abbreviations with multiple meanings across food groups, among others.

Use of Nielsen Sales Data as a Database Management Tool for SR

Current Uses

- Selection of brands with the highest market share for a given food item for nationwide sampling and analysis, e.g., for analysis of regular potato chips, brand X, Y, and Z were sampled.
- Market share weighting of nutrient data to generate nationally representative data, e.g. nutrient data for potato chips brand X, Y, and Z are multiplied by their respective market shares, normalized to 100 to obtain a weighted average.

Illustration of Potential Uses of Nielsen data

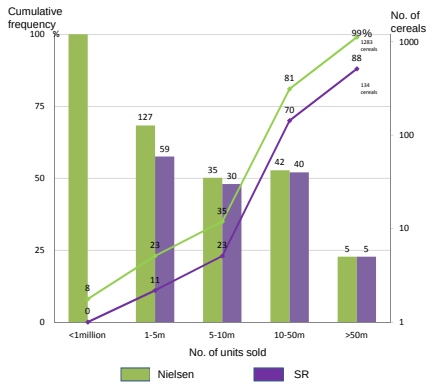
Objective: To identify foods to include in SR to ensure comprehensive coverage of foods, and prioritize foods for nationwide sampling and analysis, using ready-to-eat (RTE) cereals as an example.

Method: 1. Establish sales criteria: For inclusion in SR - >1 million units sold and > 0.1% of total sales of RTE cereals; For nationwide sampling and analysis - Top quartile of total sales of RTE cereals.

2. Identify foods in Nielsen sales data that meet the criteria: There are ~1300 unique RTE cereals (~3000 unique UPC #);134 unique RTE cereals meet the sales criteria for inclusion in SR (see Figure 1). Eight top-selling RTE cereals represent the top 25% of total sales of RTE cereals.

3. Review SR descriptions to identify foods that meet the sales criteria, but are not included in SR and review foods analyzed in past 5 years to identify foods that meet the sales criteria, but have not been analyzed.

Figure 1: RTE cereals in Nielsen and SR



Results: There are 17 RTE cereals that met the sales criteria but were not in SR, hence they need to be added. Two of the top selling RTE cereals have not been analyzed in past 5 years, hence need to be analyzed in FY 2014.

Conclusion: Use of Nielsen sales data as illustrated provides a cost effective strategy, as the 127 RTE cereals represent less than 10% of the RTE cereals available in the retail market, but account for 88% of total RTE cereal sales. This approach can be expanded to other food groups to ensure comprehensive coverage of foods in SR and to prioritize nationwide sampling and analysis, as its cost is prohibitive.

Other Potential Uses of Nielsen data

- To identify package sizes that need to be included for a food item.
- To identify foods that need to be discontinued from SR. Foods that were below the above sales criteria were reviewed for removal from SR.
- To identify foods and brands that are used as ingredients, to include in SR and analyze. These are not reported in the dietary surveys, e.g. Pie shell.

Conclusion:

Nielsen sales data have several limitations and challenges. However, they provide a valuable tool for databases monitoring the US food supply by providing the sales basis for prioritizing addition of foods and their analysis. They are essential in ensuring representativeness of the nutrient data. The use of the sales data as a database management tool for SR needs to be further explored.


Cumulative
frequency
1201
No. of cereals
No. of units sold